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POTATO SITUATION IN MONMOUTH COUNTY NEW JERSEY

Ellwood Douglass, County Agent

In analysing the potato industry in Monmouth County the past two years, one who has carefully studied the situation has a right to take a very optimistic point of view of the situation. This statement is based mainly on three reasons: First the elimination of the marginal land from the potato industry; second, the advantages gained by changing from a low quality potato with a limited market to a high quality potato with an unlimited market; and third, the use of certified seed and, at the same time, other improved practices, such as spraying.

Potato Soils

The fertility of our potato land is maintained by the use of cover crops and by the use of large quantities, 1800 to 2000 pounds per acre, of high analysis fertilizer. It is true, however, that Monmouth County possesses soil well adapted to potato growing. Much of our acreage is grown on well drained sassafras loam that holds moisture and yet does not puddle badly. In an average season, whether dry or wet, the soil is of a nature that will give a good crop. During the years of high prices much marginal land was added to the regular potato acreage on a number of farms with the result that as soon as the price began to drop and other sections came into production these farms were the first to feel the slump. As a consequence, most of these growers have turned their attention to some crop other than potatoes and consequently the 14,000 acres planted in 1926 are, for most part, planted on good potato land.

Cobblers vs. Giants

The change from Giants to Cobblers and round stock of different varieties and types the past few years has an example of good salesmanship on the part of those who have been leaders in im-

proving the potato industry. Up until 1923 approximately 90 per cent of the potatoes grown in the county were of the Giant or the long varieties. In 1924 there was a very decided change to the Cobblers and Green Mountain type. By 1925 the percentages were reverse, namely, 90 per cent of the round type and 10 per cent of the long potato. A number of factors were responsible for this change. The fact that the quality of the round stock was superior to the long gave a wider market and, with the grades equal to that from other sections, there was a feeling that all high-class markets would open to Monmouth County potatoes. In the past the Giant was popular in Monmouth County due to its apparent resistance to scab which appeared to be on the increase. While treatment of the soil with sulfur for the control of scab was effective as found out by the State Plant Pathologist, yet, Dr. W. H. Martin and county leaders recommended that soils known to be infested with the scab organism be eliminated from potato production. It required an intensive educational campaign to accomplish this but the result of the elimination of this land was far better than special soil treatment, for smaller yields of high quality potatoes proved to be worth more in the long run than a larger yield of the Giants variety grown on scabby soil. Other important factors in educating the farmers were experiments, tests, and demonstrations carried on by the Experiment Station under the leadership of Dr. Martin, and the County Agricultural Agent.

Certified Seed

While all the educational work as well as the changing from average or common seed to certified seed was not carried through in three years, yet, there were very striking results in 1923, 1924 and 1925. In 1922 less than 10 per cent of the farmers in Monmouth County were using certified or high quality seed while at the end of the three years, 80 per cent of the farmers were planting at least a part of their acreage to the best seed they could get. For several years the certified seed consistently out-yielded the non-certified. While some years the difference has not been great, nevertheless, the proof has been convincing. In addition there is much interest in seed treatment for such diseases as Rhizoctonia and Scab, since even with our certified stock we are not able to eliminate all diseases 100 per cent and seed treatment still pays a good return on the investment. In 1924 twenty-four seed treatment demonstrations were held in the county by the County Extension Service following directions laid down by the Plant Pathologist, every nook and corner becoming acquainted with seed treatment. In 1926 twenty-nine similar demonstrations were held with the organic mercury compounds found by Dr. Martin to be at least as satisfactory as corrosive sublimate and far simpler to use. There is still very keen interest among the growers from the county in watching the results. In addition there has

been more interest the past spring in potato spraying for the control of blight, flea beetle, Colorado potato beetle, and the leaf hopper. A number of new sprayers have come into the county which is a mighty good thing for the industry, the very best growers being the first to take up with this practice thus practically guaranteeing its success. We predict that in three years the majority of growers will be spraying their crop.

As a summary we would say that through the untiring efforts of the State Plant Pathologist and the close cooperation of the County Extension Service the Monmouth County potato growers are coming back. While the aim is not to increase the acreage to the extent it was a few years ago, yet, there is a place in the market for Monmouth County's high-class stock and our aim is to take that place and fill it 100 per cent. It might be said, incidentally, that this same story will, in most instances, fit Central Jersey's conditions as well as Monmouth County.

OHIO GROWN POTATOES IMPROVING IN QUALITY

C. W. Waid, Chief,
Division of Fruit and Vegetable Standardization,
Ohio Department of Agriculture

It is apparent to those who have had an opportunity to observe the tendency among Ohio potato growers that there has been a very noticeable improvement the last few years in the quality of the potatoes produced. The improvement is still being made as better methods of production are being adopted. There are several reasons why this has taken place.

For one thing, the introduction of certified seed potatoes has had a decidedly beneficial influence. Wherever certified seed has been introduced in quantity, very marked advancement has been made.

When the writer returned to Ohio in 1921, after having spent several years working with the Michigan Potato growers, it was very apparent that the amount of disease in Ohio seed stock was very great.

The production of a majority of the fields in the state was being kept down because of the prevalance of disease. Not only was the quantity reduced because of this situation, but the quality was also impaired.

During the last five or six years, hundreds of car loads of certified seed potatoes have been shipped to Ohio from Northern sections, and a considerable quantity of certified seed has been grown in Ohio and distributed among Ohio growers.

A statement made by a Michigan potato authority during the last year indicates what they came to realize is taking place. Michigan potato growers are producing large quantities of certified seed potatoes and selling them to potato growers in Ohio, Penn-

sylvania and other states which supply the same markets as are supplied by Michigan potato growers who raise table stock potatoes. As a result, the quality of the potatoes which are being grown from certified seed secured from Michigan and other Northern states, is so improving the quality of the table stock resulting, therefrom, that Michigan finds the competition more keen each year.

There is no longer any need of demonstrations being made in many sections of Ohio or any other state where certified seed has been used commonly to convince growers of the advantage of the use of such seed.

Another thing which has done much to contribute to improved quality of the Ohio potatoes is the Extension Service Program which has been put on by the Ohio State University. Professor Earl Jones and Professor E. B. Tussing of the Ohio State University, Columbus, Ohio, have been doing work in practically every potato producing section of the state. This work has included demonstrations of the use of modern methods and the conducting of Field Days and giving of lectures bringing the results of these demonstrations and also the results of the work of the Ohio Experiment Station to the attention of the growers.

Professor T. H. Parks, Extension Specialist in Entomology, has also done much valuable work among the potato growers along the line of carrying on demonstrations and giving lectures on the control of insects effecting potatoes. All of these men have been very helpful to the growers of the state.

The research work carried on by both the Horticultural and Botanical Divisions of the Ohio Experiment Station has been instrumental in calling to the attention of the Ohio potato growers some of the practices which give the best results so far as economic yield and quality production is concerned.

Several men connected with the Ohio Experiment Station have devoted some time to resarch work along these lines, while Mr. Paul E. Tilford of the Botany Department, and Mr. Roy Magruder of the Horticultural Division devote practically all of their time to research work with potatoes.

The results of this work, of course, is available for the use of the Extension men at the University as well as having been published by the Experiment Station.

No doubt, another factor which has had considerable influence in improving the quality of Ohio grown potatoes is the fact that the quality of potatoes which have been shipped into Ohio from other states where careful grading is being done has forced the Ohio growers to give greater consideration to quality.

When potato growers as far away as Idaho can ship carload after carload of special bakers and other grades of potatoes of superior quality into the Ohio markets and sell them at an advance above potatoes grown in Ohio, our growers realize that they must watch

their step if they are going to be able to compete with their distant rivals.

Furthermore, Idaho is not the only state which has been improving their grading and marketing methods rapidly in recent years. Minnesota, Michigan, Wisconsin and Maine can all be sighted as states where this kind of work has been given a large amount of attention.

Only ten years ago, the Michigan potato growers fought the introduction of potato grading with vigor. Today, they have a compulsory grading law which is being carefully enforced and in spite of the fact that they have been shipping a large percentage of their certified seed to other states they have been improving their cultural practices in other ways and as a result, they are placing on the market a much better quality potato today than ever before.

It is well that every state should look to quality as well as economic production. While there have been years when there apparently were too many potatoes produced to supply the demand, there never has been too many **good** potatoes produced. Even during years of heavy production, if only quality potatoes had been placed on the market, the demand would have been equal to or better even than the supply.

It is an easy matter to over-stock any market with inferior goods. It is much more difficult to over-stock a market with quality products.

Every movement which has as its object economic quality production should be a benefit to producers and consumers alike.

A slogan which has been used by others in connection with other products might well be used by the potato growers not only of Ohio, but of other states as well. That is, "Not more potatoes, but better potatoes".

MY EXPERIENCE WITH GREEN MOUNTAIN'S

Walter Steel, Hall's Harbor, N. S.

In the spring of 1922, I obtained from Mr. Ray Bennett, Hall's Harbor, sufficient Certified Green Mountain's to plant 11 acres. I might add that the seed from which these potatoes were grown was purchased in New Brunswich, in the fall of 1920, by Prof. W. S. Blair, Experimental Station, Kentville, who supplied it to Mr. Bennett. I planted the potatoes during the early part of June. They came up well, and were very vigorous, but on inspection 4 1-3 per cent Mosaic was found. I then went through the fields, taking out the Mosaic and any other undesirable plants.

By digging each hill separately and taking the best, I selected several barrels for the purpose of planting a "seed plot" the following year. In 1923 I planted them in an isolated field about one

acre in extent, expecting that when the plants presented themselves they would at least show a decrease in the percentage of disease over the previous year. They grew splendidly, but to my disappointment Mosaic was much more prevalent than in the 1922 crop.

Our District Inspector (Mr. McCulloch) paid me a visit, and after discussing matters with him. I took his advice and commenced getting ready for the next year, by putting a stake to thirty of the most vigorous hills growing in the field. Previous to this the field had been thoroughly rogued and when inspected, only a small percentage of Mosaic was found.

Later in the season I dug the "staked hills", putting the tubers from each in a separate paper bag. In the spring of 1924, I gave the tubers a thorough sorting discarding any which were not exactly true to type. I then proceeded to plant the most perfect tubers in my first tuber unit plot. After the plants appeared above ground I gave them a "look over" almost daily during the season and as soon as an undesirable plant presented itself I immediately pulled up the whole unit that contained it. I regret I did not keep strict account of the number of units I destroyed so that I could ascertain the percentage of Mosaic developed. I believe it was approximately 8 per cent. These units were dug separately, our District Inspector being present at the time of digging. We selected the eight best units—the average weight being 3 pounds per hill. These were kept for planting in the next year's "tuber unit plot", while the reemainder were bulked. In 1925 the eight selected units were planted in the "tuber unit plot" and I was gratified to find that they developed no disease.

The remainder which had been bulked were planted in a "multiplying plot" 130 rods in area on which I grew 115 barrels. These developed a trace of Mosaic.

In the fall I again selected my best units (the weight again being about 3 lbs. per hill), and kept them for planting in the tuber unit plot the following year. The remainder went for multiplication.

In 1926, I planted the usual "tuber unit plot" which developed no disease.

I also planted a "multiplying plot" (1½ acres) which showed no sign of disease.

The main crop from seed grown on 1925 multiplying plot developed about two-thirds per cent Mosaic.

This year (1927 my tuber unit and multiplying plots show no sign of disease. I have 23 acres growing from seed produced on the 1926 multiplying plot, in which, with the exception of one plant slightly affected with Mosaic found in a 3-acre section, no trace of disease has been discovered.

Thus, in the course of 5 years intensive work I have succeeded in practically eliminating Mosaic from my Green Mountain stock.

Editor's Note:—
Mr. Steel is located on North Mountain, Kings Co., Nova Scotia, a district where the conditions for potato growing are very good.

THE ELIMINATION OF VIRUS DISEASES

Walter M. Peacock

The writer has heard of disease free fields of potatoes but has never seen them. If any grower has such a field of potatoes he has a gold mine at his back door.

The various methods used have all helped in controlling the virus diseases, such as the different forms of mosaic, leaf roll and spindle tuber. But none of the methods being employed today to the best of the writer's knowledge are 100 per cent perfect in eliminating these diseases. The merits of the different methods vary under different circumstances. The method used effectively in one locality may not be as successful in another, or the method that is efficient one year may not be the next.

Spraying

Thoro and frequent spraying and dusting can not be emphasized too strongly in controlling plant lice and leaf-hoppers. These insects tansmit the virus diseases from diseased to healthy plants.

Roguing

The efficiency of controlling the virus diseases by roguing depends upon several factors. First the person doing the roguing being able to recognize the visible symptoms of all these diseases in their different stages of development. Second, the interest of the roguer in the work. Third, the time and frequency of roguing. Roguing can not be started too soon; i. e. as soon as any symptoms can be recognized. Usually mosaic under cool and cloudy conditions become apparent soon after the potato plants emerge above the ground. If not rogued out at this time the mosaic plants may become masked so that they can not be detected later under warmer weather conditions. If they are not rogued out they become the source of infection for healthy plants. Frequent roguing from the start to the finish lessens the chances for insects to transmit diseases from sick to healthy plants.

Fourth, how the roguing is done. If the rogued out plants are left lying where they were dug out with insect disease carriers on them, the job of roguing is not half done. It is true that the diseased plants have been destroyed but the aphids and leaf-hoppers dislike the flavor of wilting and dying plants and find the surrounding healthy plants carrying the diseases with them. In

making the last roguings **too frequently many of the tubers of the diseased plants are left in the ground and harvested with the crop** aiding in the tansmission of the virus diseases from one crop to another. Thoro roguing under proper weather conditions will keep these diseases under control but it will not entirely eliminate them no matter how favorable the weather may be for detecting them.

Test Plots

These are very useful in testing out seed produced by different growers. They are an aid in locating the cleanest sources of seed. They also serve as a check on the inspectors when properly conducted. In some sections there may be a tendency for a virus disease to remain more or less masked. Therefore it is a good idea to have one test of the various sources of seed where it is quite certain that the diseases will develop.

Tuber Units

This method of planting potatoes is not new. It has been advocated for about two decades but is now becoming popular among seed growers. When potatoes are planted the ordinary way in rows and the seed pieces dropped a foot or less apart the healthy vigorous plants may soon cover up a small diseased one or make it difficult to detect it. It is quite easy to detect four plants side by side from the same tuber all effected with secondary infection. The tuber unit method has the advantage of making it easier to spot the diseased plants. Until the expense of planting by the tuber unit method can be reduced it will be used only in the foundation or seed plot except in a few cases. Even this method is not going to entirely eliminate the virus diseases as long as diseased tubers are planted and there are disease transmitting insects present.

Indexed Tuber Units

This method which consists of testing a small portion of the tuber before planting the remainder in tuber units in the field seed plot. The usual method employed is first to number the tuber, then cut out an eye near the bud end, plant this piece in a labelled pot in a greenhouse, hotbed, or in consecutive order in the field. In the greenhouse the plants are usually planted too close together. The tall rapid growth under greenhouse conditions, shortness of time the plants are left in the greenhouse, the different temperatures under which the virus diseases are more pronounced and the different stages of growth at which the virus diseases become apparent make it impossible to eliminate all of the dieased tubers. Thus some infected tubers are planted in the field seed plot and diseases transmitted from plants from these to healthy plants. There may be some careful workers who have been able to eliminate all the virus diseases by the indexed method described above but the writer has never come in contact with their work.

Another big factor preventing the elimination of the virus diseases is due to the location from which the seed piece is taken. It stands to reason that the virus enters the tuber thru the stem and how far it gets into the tuber depends on the time of infection. If the plant dies about the time the virus enters the tuber the chances are that it never gets very far from the stem end. Thus by taking the indexed seed piece from the end opposite to the stem of the tuber will not aid in detecting all the diseased tubers. **Taking one large seed piece or two good size ones from the stem end and planting them as indexes as to the behavior of the plants grown from the remainder of the tuber the elimination of the diseases from the seed stock will become more effective.** Planting these pieces from the stem ends a good distance apart in a field plot isolated from other potatoes where frequent observations can be made and in sections of the country where virus diseases are not likely to be masked, the **goal of eliminating these diseases from the indexed tubers should be reached.**

CROP AND MARKET NEWS

POTATO MARKET WEAK; CROP AGAIN REDUCED

(Contribution from the Fruit and Vegetable Division, Bureau of Agricultural Economics, U. S. Department of Agriculture

At this writing, the expected had not yet happened. Potato markets had been dull and weak, but there was a general feeling that, if the October crop report showed lighter production than was estimated in September, prices probably would strengthen. Production estimates **were** reduced by 5,000,000 bushels, but the next day or two showed no material change in the market. Digging was at its height and carlot movement was heavy.

The total crop is now estimated at 395,000,000 bushels. Yields were running considerably below expectations in New York and New England, but decreases there were partially offset by small increases in other States. For the country as a whole, this year's crop apparently will be just about the average for the past five seasons. Production is substantially below the five-year average in the northeastern States and the North Central region, but far above average in nearly all of the western States. New Jersey's crop turned out exceptionally well, exceeding 10,500,000 bushels.

Weather Affects Crop

Blight and rot caused serious losses from Pennsylvania to Maine, but in some sections dry weather during September checked growth. In Michigan, the crop was reduced by drought, the September rains being too late to help many fields. Wisconsin and Minnesota, on the other hand, showed some improvement. Rains

helped the crop in Washington, and there were some gains in the Dakotas, Nebraska and Colorado, but frost reduced prospects in Idaho.

Condition of the later diggings in Maine was found to be much better than that of the early crop. Harvesting was more nearly completed in Maine than in any other State, and storage houses were well filled. Rains interfered considerably with digging operations in several important producing sections. Freezing weather occurred in southern Idaho during early October, but the undug crop suffered no damage. Tubers were showing good quality in that State. Growers were rather optimistic over the market outlook, and were expected to hold their Russet Burbanks for at least $1.00 per 100 pounds. The Idaho potato industry apparently is shifting somewhat to the lower Snake River Valley, so that the Idaho Falls district no longer holds the preeminence it once had. Development of the irrigation project at American Falls is largely responsible for the changed situation in southern Idaho.

Shipments Caught Up

Rapid increases in carlot movement after the middle of September enabled the weekly output not only to catch up with last season's corresponding record but to exceed the weekly totals for 1926. The 19 leading late-potato States forwarded a total of 27,000 cars during four weeks ended October 8, or about 5 per cent more than during the same period last season. New Jersey and Kansas, among the mid-season States, also continued shipments much later than last year, and the month's output from these secondary producing sections exceeded 1,000 cars, compared with 500 in 1926.

Total shipments reached high mark of 9,000 cars during the first full week of October, or about 1,500 more than for the same week last season. Wisconsin, western Nebraska and western Colorado reported most stock going into storage, to await better market conditions. Haulings were heavy in southen Colorado. Important carlot forwardings during the week of October 2-8 were 2,600 cars from Minnesota, 1,200 each from Maine and North Dakota, about 1,000 from Colorado, and 400 to 600 each from Long Island, Wisconsin, South Dakota ad Idaho. Michigan's crop is particularly slow in getting under way; only 500 cars had been moved from points in that State, compared with 2,500 a year ago.

Prices Generally Lower

After the sharp reduction in the September estimate of the potato crop, markets advanced considerably, but the gains were not held long. The whole situation became sluggish and most shippers and dealers took a waiting attitude. The price curve moved up and down during the past month and ended 10c-35c per 100 pounds below the level of early September. Further declines were occurring just prior to the time of the October crop report. F. O. B. quo-

tations in the leading shipping districts finally ranged from 70c to $1.75 per 100 pounds, lowest prices prevailing in Idaho, Colorado, Nebraska, Minnesota and Maine, while highest level was reached in western New York. Returns at shipping points averaged fully 50c less than a year ago, and in some sections there was a difference of 90c. Growers in New Brunswick, Canada, were being offered about $1.00 per barrel for carload lots in late September, and local reports from that territory indicated a rather discouraging outlook for foreign markets.

Arrivals in consuming centers were heavy during the peak movement. Some days, Chicago had over 400 cars on track daily. By October 8, sacked northern Round Whites and Red River Ohios had declined to $1.30-$1.65 in that carlot market, with Idaho Rurals bringing $1.50-$1.60 and Russets $1.65-$1.75. General jobbing range on eastern Round Whites was $1.90-$2.25, while Maine Green Mountains sold at $1.85-$2.00 and Long Island stock as high as $2.35.

Connecticut—Due to the very wet August, late blight has been prevalent in many late crop potato fields during the past month, and as a result many complaints of blight rot are being received. Undoubtedly there will be a considerable reduction in yield, due to both small and decayed tubers. It is impossible at this time to say what the reduction will be finally, for much depends on the September weather. The past ten days (Sept 2-12) have been clear and cool, tending to reduce the amount of damage from rot.—**B. A. Brown, Sept. 12.**

New Jersey.—The New Jersey Seed Potato Tour was held on September 27. New Jersey seed potatoes always attracted considerable attention. At one time there were seventy automobiles in line. Many large fields of vigorous looking potatoes were observed and all indications point to a large yield. Considerable amount of seed was sold either before or on the day of the tour. But due to an unusual large acreage there is a large amount of good seed for sale.—**Walter M. Peacock, Oct. 1.**

Onley, Va.—The acreage of the second crop of Irish Cobblers on the Eastern Shore is about the same as normal, except last year. A very good stand was secured and the crop started with unusual rapidity and vigor. However the continued dry weather thru the latter part of September and thus far thru October is checking the development of the tubers, and the severe wind storm on October 3rd did much damage to the potato tops. Early blight is also making its appearance in many fields. Therefore it is feared the yield will not be quite as heavy as anticipated. Nevertheless there will probably be a few "home grown" seed for sale.—**W. O. Strong, County Agent.—Oct. 8**

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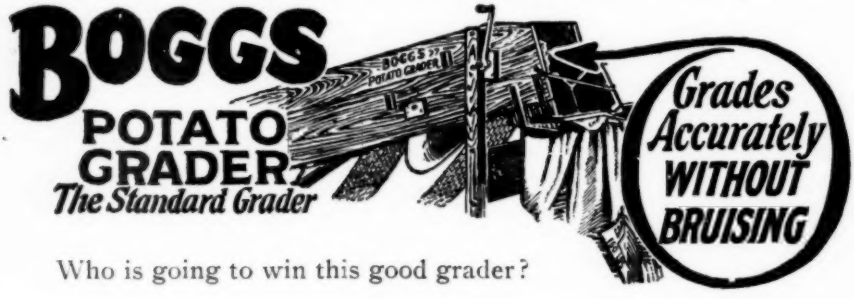
MEMBERSHIP CAMPAIGN

Montana is making hay while the sun shines. It looks as if Montana is going to stay at the head of the list, or make some other state or province work hard for this honor. It is needless to say that the best potato growers are those who are best informed. All of Montana's certified seed potato growers read the American Potato Journal.

Other states have made good starts and will have favorable reports to make next month. The membership ranking of paid up members will be published in the November or December number. How is your state going to rank at this time? It can not stand still. It is either going up or down depending on the interest taken by the members of each state.

PRIZES

Yes, some members are going to get big prizes. The **Boggs Manufacturing Corporation, Atlanta, New York,** is offering their well known—Boggs Potato Grader No. 3 as an international prize. The other prizes will be listed in the November issue of the Journal. There are going to be other big prizes too. Now is the time to work for one of these big prizes. **He who works will win.** Those who send in the largest numbers of new members will win the prizes.



Who is going to win this good grader?